PRAGMATISM, SCIENCE, AND SOCIETY: A REVIEW OF RICHARD RORTY'S OBJECTIVITY, RELATIVISM, AND TRUTH: PHILOSOPHICAL PAPERS, VOLUME 1

SAM LEIGLAND

GONZAGA UNIVERSITY

Richard Rorty's *Objectivity, Relativism, and Truth: Philosophical Papers, Volume 1* is a collection of papers that explores the implications of philosophical pragmatism in several areas, including natural science, mind–body issues in philosophy, and perspectives on liberal democracy and social change. Similarities between Rorty's pragmatism and Skinner's radical behaviorism are explored in each of these three areas. Although some important and interesting differences are found regarding the role of science in social change, most areas show remarkable similarities between the two systematic perspectives.

Key words: radical behaviorism, pragmatism, philosophy, science

The emergence of the experimental analysis of behavior was accompanied by a distinctive and evolving set of scientific practices that, for better or worse, have generally fallen under the term *radical behaviorism* (e.g., Day, 1983; Skinner, 1945, 1974). As a set of verbal practices, radical behaviorism has been one of the ways that the behavior-analytic scientific community has been distinguished from more traditional varieties of psychological science.

The task of defining, clarifying, describing, exploring, and extending the implications of radical behaviorism is useful in a number of ways. Beyond the immediate purposes of making assumptions, goals, explanatory practices, and related issues explicit and open to critical review (e.g., Leigland, 1997), it is useful in responding to critics who have misunderstood and misconstrued the results or implications arising from radical behaviorism or the field of behavior analysis (e.g., Koch, 1976; cf. Day, 1992; see also Staddon, 1993, and commentaries), as well as providing a basis upon which new conceptual or methodological proposals generated within the field may be evaluated, and in general, allowing the future development of the scientific field to take place "self-consciously" (e.g., Hineline, 1992).

Although its origins can be traced further back (e.g., see Catania & Hineline, 1996), the last decade has seen accelerating growth of a literature of radical behaviorism (e.g., Chiesa, 1994; Lattal, 1992; Leigland, 1992, 1997; Smith, 1986; Todd & Morris, 1995). This literature has served to describe the historical context of radical behaviorism, to follow its systematic implications, and to explore relations between radical behaviorism and other areas of science and philosophy. Important themes have been found in common with radical behaviorism and the ordinary-language philosophy of the later Wittgenstein (e.g., Day 1969a), as well as similarities with a generic interpretation of phenomenology (Day, 1969b) in the sense of "the study of phenomena"; a consequence of Skinner's (e.g., 1931) interest in staying at the level of one's observations without appealing to standard forms of reductive theory (e.g., Leigland, 1997). Other sources have documented important relations between Skinner's systematic views and Machian positivism (e.g., Day, 1980; Marr, 1985; Smith, 1986, 1995) and pragmatism (e.g., Day, 1980, 1983; Hayes & Brownstein, 1986; Schneider, 1997; Zuriff, 1980).

Pragmatic themes have appeared in the behavior-analytic literature in part because it is clear that Skinner's views on the goals of science, as well as his general view of truth, could be described as strongly pragmatic in character (e.g., Day, 1980, 1983; Hayes & Brownstein, 1986; Zuriff, 1980). More recently, the term *pragmatic* has appeared in discus-

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sions of behavior-analytic science as a contextualistic worldview (e.g., Hayes, Hayes, & Reese, 1988; Morris, 1993, 1997). According to the taxonomy of worldviews described by Pepper (e.g., 1942), a characteristic of contextualism is a pragmatic truth criterion of *successful working,* which may be contrasted with, for example, the mechanistic world view with correspondence as its truth criterion. Contextualism has been described as the philosophical foundation of behavior analysis (at least in the context of Pepper's taxonomy; e.g., Hayes et al., 1988), although Pepper's mechanism-contextualism distinction has also been the subject of criticism (e.g., Marr, 1993). Nevertheless, contextualism has been and continues to be a useful way to summarize some of the salient features of behavior-analytic science.

Although many behavior analysts may thus associate pragmatism with Pepper's contextualism and with such standard phrases as *successful working* and *effective action,* there are much broader issues to be considered in relating pragmatism to behavior analysis. Pragmatism, as it has developed in academic philosophy, is a sophisticated and complex set of views; it is not a singular, unitary, organized system (any more than is behaviorism or cognitivism; for an excellent overview, see Murphy, 1990). Further, pragmatism is neither a philosophy of science nor a philosophy of psychology, but is instead a philosophical perspective that evolved in the context of and in response to a variety of traditional issues in academic philosophy. As such, the agenda of philosophical pragmatists will likely appear somewhat alien to behavior analysts who are mainly interested in basic and applied science. Nevertheless, a number of themes described by pragmatists are clearly relevant to natural science in general and to behavior-analytic science in particular.

The most prominent advocate of philosophical pragmatism in recent years has been Richard Rorty. His 1979 book, *Philosophy and the Mirror of Nature*, and subsequent writings have been central to contemporary philosophical discussions on the implications of pragmatism (e.g., Lamal, 1983, 1984; Rorty, 1989). The focus of the present review is Rorty's 1991 book, *Objectivity, Relativism, and Truth: Philosophical Papers Volume 1*, a book that emphasizes issues of pragmatism and

natural science, and reveals a number of important thematic similarities between Rorty's pragmatism and Skinner's radical behaviorism (see also Lamal's, 1983, review of Rorty, 1979). The book is a collection of philosophical papers written in the 1980s, and is organized into three sections. The first section concerns a pragmatic perspective on natural science and its relationship to the rest of culture. The second section explores and extends certain pragmatic themes arising from the work of Donald Davidson, a contemporary philosopher who has been interpreted by Rorty and others as contributing to pragmatic philosophy in substance if not in name. The third section examines issues of liberal democracy from a pragmatic perspective. The present review will characterize a central theme from each of these sections in turn, exploring possible relations of each to radical behaviorism as a scientific system.

ANTIREPRESENTATIONALISM

Perhaps the most efficient way to characterize pragmatism according to Rorty is to state it as a view that questions the legitimacy of a particular set of traditional philosophical issues or problems. Through the influence of Locke, Descartes, and Kant, these problems have been central in the agenda of academic philosophy, and may be viewed as central philosophical concerns of the traditional fields of epistemology and related areas. Representationalist in character, these problems take as a central assumption that the mind (or in later analytic philosophy, language) has special properties or processes that provide for the accurate representation of reality. Knowledge claims are to be assessed regarding the accuracy of representation, and philosophy's task in pursuing such questions is thus foundational with respect to questions of mind, language, and knowledge (e.g., Rorty, 1979).

The literature of pragmatism has endeavored to show how this view of "mind as the mirror of nature" may be dispensed with, thus making irrelevant some traditional distinctions in philosophy, such as the distinctions between mind and body, between appearance and reality, and between language and fact. Within the pragmatic tradition, such problems and distinctions are viewed as

pointless (although some of the pragmatist philosophers have edged toward a concern with one or another of these issues at various times; e.g., Murphy, 1990; Rorty, 1979, 1991). The pragmatist philosophers have thus had two primary tasks: first, to show in what ways the traditional problems may be construed as useless linguistic contrivances, and second, to explore the implications of philosophy, science, democratic politics, and culture *without* the perspectives that have granted importance to those traditional problems and issues. Pragmatism has thus been described as a philosophy that is edifying rather than systematic, and therapeutic rather than constructive (e.g., Rorty, 1979, 1991).

Rorty (1991) summarized his epistemological critique in the following way: ''By an antirepresentationalist account I mean one which does not view knowledge as a matter of getting reality right, but rather as a matter of acquiring habits of action for coping with reality'' (p. 1). The notion of a physical world in which humans and other organisms interact directly is not in question. Instead, Rorty questions whether it makes sense to speak of minds, of language, or of a particular vocabulary (e.g., the technical vocabulary of physics) as more or less accurately *representing* that world. In extending the pragmatist tradition, Rorty makes the case that no vocabulary, for example, may be said to more accurately represent reality than any other; there are, rather, different vocabularies to suit different human purposes.

Pragmatism as antirepresentationalism has a number of implications for how we speak of science. In the standard forms of scientific realism, for example, it is usually claimed that the success of science is explained by a method and vocabulary that more accurately describe the world than do those of alternative pursuits. Although there has been some variation among pragmatist philosophers on matters of science (e.g., Murphy, 1990), Rorty's antirepresentationalism may be illustrated with the following passage:

> On [the realist] account, the reason why physicists have come to use ''atom'' as we do is that there really are atoms out there which have caused themselves to be represented more or less accurately—caused us to have words which refer to them and to engage in the social practice called microstructural phys-

ical explanation. The reason why such explanation meets with more success than, say, astrological explanation, is that there are no planetary influences out there, whereas there really *are* atoms out there.

> The antirepresentationalist is quite willing to grant that our language, like our bodies, has been shaped by the environment we live in. Indeed, he or she insists on this point— the point that our minds or our language could not (as the representionalist skeptic fears) be ''out of touch with the reality'' any more than our bodies could. What he or she denies is that it is explanatorily useful to pick and choose among the contents of our minds or our language and say that this or that item ''corresponds to'' or ''represents'' the environment in a way that some other item does not. On an antirepresentationalist view, it is one thing to say that a prehensile thumb, or an ability to use the word ''atom'' as physicists do, is useful for coping with the environment. It is another thing to attempt to *explain* this utility by reference to representationalist notions, such as the notion that the reality referred to by ''quark'' was ''determinate'' before the word ''quark'' came along (whereas that referred to by, for example, ''foundation grant'' only jelled once the relevant social practices emerged). Antirepresentationalists think that attempt hopeless. They see no way to explain what ''determinate'' means in such a context except by chanting one of a number of equally baffling words, and so they see the realist's use of ''determinate'' as merely incantatory. . . .

> Antirepresentationalists . . . see no way of formulating an *independent* test of the accuracy of representation—of reference or correspondence to an ''antecedently determinate'' reality—no test distinct from the success which is supposedly explained by this accuracy. (Rorty, 1991, pp. 5–6)

Thus the success of science is not under dispute (although Rorty will contend that the success of science is defined with respect to only certain of human goals; namely, goals relating to, as he says, ''prediction and control''). What is under dispute is whether this sort of success may be explained by appealing to the notion that scientists are somehow in greater touch with reality, or with the way the world is, in and of itself.

There are, of course, a number of issues raised by such a view of science (and it should be noted that Rorty's pragmatism is not to be dismissed simply as ''antirealism,'' because a

number of philosophical positions that go by the latter name share representationalist assumptions as well; Rorty makes a case that the realism–antirealism distinction serves no useful purpose in philosophy). Certainly one issue that needs to be addressed is the relationship between science and "facts." There is a sense in which science produces facts, whereas other fields produce various kinds of fuzziness that may be placed somewhere on a dimension between the extremes of useless argumentation and squishy information. The harder the facts, the harder the science (some relations between positivism and pragmatism will be discussed below). How is the "hardness of fact" to be interpreted from an antirepresentationalist account? Here it is useful to take up the following passage, quoted at some length, from Rorty (1991):

> Science, it is said, deals with hard facts, and other areas of culture should either imitate, or confess their inability to imitate, the scientists' respect for brute factuality. . . . [The pragmatist] offers an analysis of the nature of science which construes the reputed hardness of facts as an artifact produced by our choice of language game. We construct games in which a player loses or wins if something definite and uncontrollable happens. In some Mayan ball game, perhaps, the team associated with a lunar deity automatically loses, and is executed, if the moon is eclipsed during play. In poker, you know you've won if you're dealt an ace-high straight flush. In the laboratory, a hypothesis may be discredited if the litmus paper turns blue, or the mercury fails to come up to a certain level. A hypothesis is agreed to have been "verified by the real world" if a computer spits out a certain number. The hardness of fact in all these cases is simply the hardness of the previous agreements within the community about the consequences of a certain event. The same hardness prevails in morality or literary criticism if, and only if, the relevant community is equally firm about who loses and who wins. . . .

This pragmatist analysis of the hardness of data may seem to confuse the causal, physical force of the event with the merely social force of the consequences of the event. When Galileo saw the moons of Jupiter through his telescope, it might be said, the impact on his retina was "hard" in the relevant sense, even though its consequences were, to be sure, different for different communities. The astronomers of Padua took it as merely one more anomaly which had somehow to be worked into a more or less Aristotelian cosmology, whereas Galileo's admirers took it as shattering the crystalline spheres once and for all. But the datum *itself*, it might be argued, is utterly real quite apart from the interpretation it receives.

The pragmatist meets this point by differentiating himself from the idealist. He agrees that there is such a thing as brute physical resistance—the pressure of light waves on Galileo's eyeball, or of the stone on Dr. Johnson's boot. But he sees no way of transferring this nonlinguistic brutality to *facts*, to the truth of sentences. The way in which a blank takes on the form of the die which stamps it has no analogy to the relation between the truth of a sentence and the event which the sentence is about. When the die hits the blank something causal happens, but as many *facts* are brought into the world as there are languages for describing that causal transaction. As Donald Davidson says, causation is not under a description, but explanation is. Facts are hybrid entities; that is, the causes of the assertibility of sentences include both physical stimuli and our antecedent choice of response to such stimuli. To say that we must have respect for the facts is just to say that we must, if we are to play a certain language game, play by the rules. To say that we must have respect for unmediated causal forces is pointless. It is like saying that the blank must have respect for the impressed die. The blank has no choice, nor do we. (pp. 80–81)

For Rorty, facts are verbal statements, but this is not to say that facts, hard or otherwise, are mere social contrivances or conventions. The description of a given fact, for example, may be relatable to, or under the influence of, a given environment–behavior interaction or class of interactions, but the *description* of the fact, as a verbal event, necessarily involves the complexities of a history in a particular verbal community along with all of the other factors and contingencies affecting the describer (Skinner, 1957). The metaphor of the hardness of a fact may be interpreted in terms of the restrictiveness of the verbal contingencies that operate in a particular verbal community.

Compare this view to the following passage from Skinner's (1957) *Verbal Behavior*, in which the study of scientific methodology is given brief interpretation:

> A . . . sequence [of methodological inquiry] in science might be as follows: (1) relatively abstract responses specifying particular properties of stimuli prove useful, (2) the scientific

community arranges contingencies of reinforcement which constrain speakers to respond to isolated properties, and (3) the rules and canons of scientific thinking which govern classification and abstraction are studied to explain the effectiveness of (1) and (2) and possibly to suggest improved behavior and practices. (Skinner, 1957, p. 430)

Here the business of science is interpreted in terms of behavioral processes and contingencies of reinforcement; for example, discrimination and abstraction. As the usefulness (e.g., with respect to prediction and control) of the abstractions becomes recognized within the scientific community, further contingencies evolve in which scientific behavior becomes constrained, or discriminated with respect to the properties described through the special characteristics of the verbal community. The hardness of a fact, in this sense, may be crudely summarized as a matter of social convention that arises out of shared goals and verbally mediated discrimination training.

Because the hardness of a scientific fact may be tied to the conventions of a scientific verbal community, in verbal communities in which those conventions do not hold, the hardness and even the factualness of the fact may be difficult to communicate. For example, in a criminal trial, hard scientific evidence, such as DNA testing, may have its hardness compromised by challenging the integrity of the scientific procedures, either in the particular instance or as a practice in general, but in any case, a given juror may respond to the evidence as neither hard nor factual if he or she has had no contact, history, or training in a relevant scientific community.

Both radical behaviorism and pragmatism are thus without philosophical first principles, in the sense that there is no metaphysical grounding in one set of facts, rationalistic assumptions, ontological commitments, or the like. Different descriptions of facts, like different explanations, serve different purposes, or couched in behavior-analytic terms, different tacts occasioned by a given array of events may arise from different kinds of contingencies affecting human behavior in interaction with the rest of the environment.

Rorty (1991) relates the views of several philosophers on the issue in the following summary:

Wittgenstein's picture of the relation of language to the world is much the same as Davidson's. They both want us to see the relation as merely causal, rather than also representational. . . .

From a Wittgensteinian or Davidsonian or Deweyan angle, there is no such thing as "the best explanation" of anything; there is just the explanation which best suits the purpose of some given explainer. Explanation is, as Davidson says, always under a description, and alternative descriptions of the same causal process are useful for different purposes. There is no description which is somehow "closer" to the causal transactions being explained than the others. But the only sort of person who would be willing to take this relaxed pragmatic attitude toward alternative explanations would be somebody who was content to demarcate science in a merely Baconian way. (p. 60)

The behavior of a pigeon in a standard operant chamber may be described and explained in different ways. Anyone who has taught an undergraduate laboratory course has observed the ease with which new students describe the behavior of the observed pigeon in ordinary-language intentional terms (e.g., "He wants to figure it out, and he has the idea, but he doesn't quite understand it yet"), and such descriptions or explanations would be interpreted by the radical behaviorist as the product of an extensive history in a particular verbal community in conjunction with the interactions under observation, and they may in fact be analyzed as such (e.g., Leigland, 1989). In the laboratory course, the representationalist view might be argued in the following way: The pigeon doesn't really have any "ideas" or "understanding," of course, because the reality is that the interactions are the effects of contingencies of reinforcement. Alternatively, one could take the position that terms such as *ideas* or *understanding* may provide a kind of everyday-language description of some of the effects under examination, but in order to work effectively with the phenomena, to reliably predict, produce, and control the interactions, we need an additional history of training beyond the ordinary and the special way of speaking that goes with it, and that is the technical scientific vocabulary of contingencies of reinforcement. The same can be said of the technical vocabularies of physics, chemistry, and biology.

If this simply concerns how we talk about science, however, then what does it matter? For the present it may be noted that the practice of science involves both nonverbal and verbal practices, and it is likely that there are advantages to developing scientific verbal practices that minimize ineffective practices and ineffectual discussion. In its critique of the traditional philosophical agendas, this has been the central function of pragmatism with respect to the verbal practices of philosophy. Understanding both the traditional philosophical agenda and the interesting verbal strategies of the pragmatic philosophers in disarming that agenda may be useful in extending and adapting the verbal practices of behavior-analytic science. In what follows, the case will be made that a basic compatibility may be seen between philosophical pragmatism and radical behaviorism as a system of science, and although the two fields certainly have their differences (also to be noted below), there may be surprising areas of mutual support as well.

Skinner and Antirepresentationalism

To what extent can Skinner's radical behaviorism be described in antirepresentationalist terms? Skinner's published writings, spanning some 60 years, present a remarkably consistent systematic position. That some inconsistencies may be found is not surprising, given the sheer amount of writing and the variety of targeted audiences. One possible inconsistency is worth examining briefly, however, because it bears directly on a pragmatist interpretation.

Of the many influences upon Skinner's work that might be noted, a few sources have had particularly conspicuous and well-documented influence. Skinner's views of science had been greatly influenced by the work of Francis Bacon (e.g., Bjork, 1993; Skinner, 1979; Smith, 1986), Ernst Mach (e.g., Bjork, 1993; Day, 1980; Marr, 1985; Skinner, 1979; Smith, 1986), and Jacques Loeb (e.g., Bjork, 1993; Day, 1980; Skinner, 1979; Smith, 1986). To these three should be added a fourth major source, the American functionalist-pragmatist tradition in psychology. Although the functionalist and pragmatic character of Skinner's radical behaviorism has been documented (e.g., Day, 1980, 1983; Hayes & Brownstein, 1986; Zuriff, 1980), the source of

such an influence has been difficult to specify (although John Dewey and William James have been cited as influential in Skinner's graduate training at Harvard; Skinner, personal communication, 1984; see also Schneider, 1997; Skinner, 1979).

Given this mix of influences, it is not surprising that Skinner's radical behaviorism has been frequently described in terms of both Machian positivism (e.g., Day, 1980; Smith, 1986) and pragmatism (e.g., Day, 1980, 1983; Hayes & Brownstein, 1986; Zuriff, 1980). What complicates this picture is that from the perspective of philosophical traditions, as Murphy (1990) has noted in a different context, ''Of course, pragmatism had always been anti-positivistic'' (p. 82). What this means is mainly that pragmatism would oppose any of the varieties of positivism insofar as the latter would assume that there are *facts* to be gotten from scientific investigation that would serve as the *foundation* of knowledge or truth. As we have seen, pragmatism has assumed the task of attacking such foundations of any kind from any source, and tying all terms, facts, and foundations back into human language, culture, and history.

How are we to reconcile the positivism-pragmatism conflict in the case of Skinner? For present purposes (and for the sake of brevity), the issue may be summarized in the following way. First, some characteristics of Machian positivism may be seen in Skinner's work, as documented by Smith (1986; see also Marr, 1985). In spite of these influences, however, a core ingredient of positivism as a philosophical position or set of assumptions may be largely missing in the case of Skinner. That is, in surveying Skinner's scientific writings, it is difficult to find any emphasis upon foundations of knowledge, despite Skinner's occasional references to the importance of facts. Radical behaviorists, like philosophical pragmatists, value scientific facts not because they are unassailable, indubitable, objective foundations of knowledge due to the privileged status of science as a window on reality, but rather because such facts may be construed as rules for effective interaction with the world. Further, and most important, all of Skinner's work on verbal behavior (e.g., Skinner, 1945, 1953, 1957) argues very strongly against the possibility of such foundations and the traditional distinction between the

"objective" and the "subjective" that has seemed to prop them up (e.g., Day, 1980, 1983; Moore, 1995; Skinner, 1964, 1989a). Thus, although some of the character of Machian positivism may be seen in Skinner's work, Skinner's radical behaviorism may nevertheless be described more consistently and comprehensively in terms compatible with philosophical pragmatism.

Examples of the pragmatic character of radical behaviorism may be found throughout Skinner's writings. Three such pragmatic themes may be identified. First, Skinner's pragmatic view of truth has been noted by Day (e.g., 1980) and by Hayes and Brownstein (1986), among others, and may be seen in the following passages:

> Scientific knowledge is verbal behavior. . . . It is a corpus of rules for effective action, and there is a special sense in which it could be "true" if it yields the most effective action possible. But rules are never the contingencies they describe; they remain descriptions and suffer the limitations inherent in verbal behavior. . . . [A] proposition is "true" to the extent that with its help the listener responds effectively to the situation it describes. (Skinner, 1974, p. 235)

> The extent to which the listener judges [a verbal response] as true, valid, or correct is governed by the extent to which comparable responses have proved useful in the past. (Skinner, 1957, p. 427)

The second theme concerns the demarcation of science. In a passage quoted above, Rorty (1991) describes the pragmatic view that "there is no description which is somehow closer to the causal transactions being explained than the others. But the only sort of person who would be willing to take this relaxed pragmatic attitude toward alternative explanations would be somebody who was content to demarcate science in a merely Baconian way" (p. 60). Indeed, Skinner's radical behaviorism shares with Rorty's pragmatism the view that science is demarcated in a "merely Baconian way" (recall Bacon's early and important influence upon Skinner; e.g., Bjork, 1993; Skinner, 1979; Smith, 1986). This is to say that science is not viewed as a privileged window upon the way the world truly is in reality, but rather is merely another form of human behavior in interaction with

the world; a form of human behavior that is valued not because of its metaphysical implications but rather because of its adaptive products, constrained as they are by human language, culture, and context. For example, Skinner summarized the difference between literary and scientific verbal practices in the following way:

> Logical and scientific verbal behavior differs from the verbal behavior of the layman (and particularly from literary behavior) because of the emphasis on practical consequences. These are not always matters of mundane technology. . . . It is a distinction between the *kinds of advantages* [italics added] gained by the community which permits us to distinguish between literary and logical and scientific subdivisions. (Skinner, 1957, p. 429)

It should be added, however, that a close examination of this theme yields a paradox. In looking at Rorty's quotation above, a case may be made that Skinner's position shares a "merely Baconian" view of science, but it would certainly be difficult to argue that Skinner took a "relaxed pragmatic attitude toward alternative explanations" of behavior. This theme will be taken up below in an examination of the differences between Skinner's radical behaviorism and Rorty's pragmatism on the role of science in human affairs.

The third pragmatic theme is Skinner's antirepresentationalism. The quotations in the following series are taken from disparate sources ranging over a period of more than 40 years. From a paper based on Skinner's dissertation (1931):

> We have been proceeding, of course, upon an unnecessary assumption, namely, that there *is* a flexion reflex which exists independently of our observations and which our observations approximate. Such an assumption is wholly gratuitous, but is remarkably insistent. . . . [With even] less justification, we are led to assume that there are isolated reflexes concealed within the behavior of an organism, which by proper investigatory methods we may discover, and in the description of behavior to state the corollary of this proposition, namely, that behavior is the sum or the integration of these units. (Skinner, 1931, p. 452)

From a discussion of the essay, "Behaviorism at Fifty" (Skinner, 1964):

> In studying perception one is "actually inves-

tigating the stimulus conditions under which people" report appearances which are at variance with information obtained by other means. "You never get to the way it *really* is." (p. 101)

From *Science and Human Behavior* (Skinner, 1953):

There are often many ways in which a single event may stimulate an organism. Rain is something we see outside our window or hear on the roof or feel against our face. Which form of stimulation *is* rain? . . . Stimulation arising from contact may not agree perfectly with that arising visually or audibly, and we may not be willing to identify one form with reality to the exclusion of the others. There are still [those] who argue for the priority of one form of stimulation and, hence, insist upon a distinction between experience and reality. . . . We are much less inclined today to ask which form of energy *is* the thing itself or correctly represents it. (pp. 276–277)

Also from *Science and Human Behavior*:

Another problem which the distinction between physical and nonphysical worlds may have been an attempt to solve arises from the fact that more than one kind of response may be made to stimulation arising from a physical event. Rain is something you may run to escape from, catch in your hands to drink, prepare crops to receive, or call "rain." Which response is made to "rain in itself"? The solution was to construct a passive comprehension of rain, which was supposed to have nothing to do with practical responses. So far as we are concerned here, the problem is disposed of by recognizing that many verbal and nonverbal responses may come under the control of a given form of stimulation. With the possible exception of the abstract verbal response, no behavior need be singled out as "knowing rain." (p. 277)

Still another from the same book:

Another problem in [operant] stimulus control has attracted more attention than it deserves because of metaphysical speculations on what is "really there" in the outside world. What happens when an organism responds "as if" a stimulus had other properties? Such behavior seems to indicate that the "perceptual" world—the world as the organism experiences it—is different from the real world. But the difference is actually between responses . . . under different modes of stimulation from a single state of affairs. . . . Usually, objects are capable of generating many different

kinds of stimuli which are related to each other in certain ways. Responses to some forms of stimulation are more likely to be "right" than responses to others, in the sense that they are more likely to lead to effective behavior. Naturally these modes are favored, but any suggestion that they will bring us closer to the "real" world is out of place here. (pp. 138–139)

From *Contingencies of Reinforcement: A Theoretical Analysis* (Skinner, 1969):

Scientific laws . . . specify or imply responses and their consequences. They are not, of course, obeyed by nature but by men [and women] who deal effectively with nature. The formula $s = \frac{1}{2}gt^2$ does not govern the behavior of falling bodies, it governs those who correctly predict the position of falling bodies at given times. (p. 141)

From *About Behaviorism* (Skinner, 1974):

It would be absurd for the behaviorist to contend that he is in any way exempt from his analysis. He cannot step out of the causal stream and observe behavior from some special point of vantage, "perched on the epicycle of Mercury." In the very act of analyzing behavior he is behaving—as, in the very act of analyzing thinking, the philosopher is thinking. (p. 234)

This sampling illustrates a scientific perspective that would qualify as outside of the mainstream realism found in most scientific fields today. This is not surprising, because the major influences upon Skinner, for example, Bacon, Mach, James, and Dewey, were also outside of the mainstream of science and philosophy.

NONREDUCTIVE PHYSICALISM

Another area addressed in the series of papers by Rorty (1991) is the general class of "mind–body" problems. Such problems have a long history in philosophy, of course, and take a number of different forms. The persistence of the mind–body controversies may be seen in a recent, influential, and controversial book by Chalmers (1996), in which extensive and detailed arguments are presented in favor of a new variation of property dualism.

Generally speaking, in radical behaviorism such problems are turned into problems of verbal behavior, as seen in Skinner's (1974)

chapter-by-chapter interpretations of the term *mind* in the context of behavior-analytic science. Beyond such general characterizations, however, the specific issues involved in mind–body problems have not been addressed in the behavior-analytic literature, although a case has been made that there are advantages in doing so (Leigland, 1996).

In a paper entitled "Non-Reductive Physicalism," Rorty (1991) builds upon the work of philosopher Donald Davidson in construing mind–body controversies in terms that are fully "naturalized" as well as disengaged from the traditional ontological framework in which such problems are normally cast. This is done by showing how the respective language games (e.g., Day, 1969a; Wittgenstein, 1953) involved with *body* and *mind* entail different goals and rules, and thus need not be given the metaphysical importance that the problems have typically demanded in traditional philosophical discourse. All of this is entirely compatible with the emphasis upon verbal behavior found in radical behaviorism (e.g., Leigland, 1996; Skinner, 1945, 1957).

In traditional analytic philosophy, the challenge to working through the mind–body problems becomes the question of how to show that all of the mind issues somehow reduce to physical terms or issues. Reductionism is itself a complex and controversial topic in philosophy for a number of reasons, and the term has varied meanings in philosophy. Its most common form, however, concerns the question of whether "higher level" phenomena are completely explainable in terms of "lower level" processes. Thus if "mental" phenomena are completely explainable in terms of biological processes (which would in turn be explainable in terms of chemical and physical processes), then it could be said that the mental is "reducible to" or is "nothing but" the physical, and the problem is solved.

The complexity of such reductionist strategies, however, may be illustrated with an example from behavior analysis. That is, taking the physical to be some sort of epistemological or ontological bedrock would be to engage in needless metaphysics. Furthermore, the technical terms and concepts of behavior analysis (such as *reinforcement* and *discriminative stimulus function*) are themselves not reducible to the language of physics, because such terms are defined with respect to observed function rather than physical specification as such (e.g., Catania, 1998; Day, 1980; Leigland, 1993, 1996).

Rorty's (1991) interpretation and extension of Davidson's philosophical work lead to a position that is thoroughly physicalistic, materialistic, or naturalistic, while at the same time avoiding the verbal traps of reductionism. Like radical behaviorism, Rorty holds that we may speak of the person-in-the-world, or environment–behavior interaction, but in our verbal and nonverbal behavior we may never escape the context of our language, culture, or history in an effort to represent the world as it *really* is, in and of itself. As with radical behaviorism, the key to understanding such problems as mind–body is to be found in verbal behavior. In this case, Rorty (1991) proposes that in making predictions about behavior, we are faced (at least in principle) with two different vocabularies, but with no way to translate from one to the other. The physiological-biological vocabulary (*body*) entails one class of interactions and consequences, and the ordinary-language purposive-mentalistic vocabulary (*mind*) entails another. The lack of translatability from one vocabulary to the other generally gets played out in philosophical discourse through the language of "ontological categories," although the latter would be viewed as an unnecessary confusion by the pragmatist and radical behaviorist alike. Further, the fact that there would be two such different vocabularies or language games involved with the same set of contextual interactions would say nothing against a materialist outlook. Further still, in seeing that these are "merely two different ways of speaking" (so to speak), there would be little sense to saying, in the reductionist tradition, that the one vocabulary "is really *nothing but*" the other. As Rorty (1991) summarizes, "The failure to hook up words or sentences in one language to words or sentences in another language by relations of synonymy or equivalence does not, on Davidson's view, tell us anything about the 'irreducibility' of, e.g., minds to brains or actions to movements. So it is irrelevant to the truth of physicalism" (p. 114).

Rorty (1991) also includes three schematics or models that illustrate progressive changes in Western philosophical views toward the relation between the human "self" and the

world. The first of these is "intended to represent the least common denominator of Platonism and Christianity" (Rorty, 1991, p. 117), and show two intersecting circles, the False Self and the World of Appearances. Contained within each of these are smaller circles, representing, respectively, the True Self and True Eternal Reality. The intersection of the two spheres represents what might be regarded as the "natural" side of the human being, the Human Body.

The second schematic shows a post-Kantian model that Rorty (1991) proposes is "taken for granted by most Western philosophers during the last two centuries" (p. 118), and that shows The Physical World (now including the human body) in complex interaction with a mutilayered Self, the inner core of which is the Inner (True) Self. Rorty summarized this model as follows: "After the world was turned over to physical science, only the Self remained as the preserve of philosophy. So most philosophy in this period has consisted in attempts to specify the relation between the three parts of this self, as well as the relation of each part to physical reality" (p. 118).

Of particular interest to radical behaviorists is the third schematic illustrating the nonreductive materialist model. As Rorty (1991) describes, "In this model the distinction between Self and World has been replaced with the distinction between an individual human being (describable in both mental and physical terms), and the rest of the universe" (p. 121). Here we have a schematic of a human body containing neural and physiological processes and interactions (as Rorty indicates, under at least two types of descriptions, the ordinary-language mentalistic vocabulary and the technical physical vocabulary) next to a box representing the body's environment. Connecting the two is a single double-headed arrow with the label "causation" (a term that, for our purposes, may be taken in its Machian-Skinnerian descriptive sense; e.g., Leigland, 1998).

Such a straightforward view of biological–behavioral–environmental interaction is quite compatible with radical behaviorism and behavior-analytic science, but Rorty (1991) goes on to address the unavoidable issue of consciousness in the context of such a neat picture as this third schematic. By consciousness,

Rorty refers to the general notion of "how things look from the inside. This, indeed, is one of the standard objections to materialism—that it leaves out 'consciousness,' how things look from within the individual human being" (p. 121; cf. Chalmers, 1996). Again, Rorty's characterization will appear familiar to behavior analysts who are well acquainted with Skinner's (e.g., 1945, 1953, 1957, 1964, 1974) analysis of verbal behavior under the control of private events (see also Day, 1977, 1983), as in the following passage:

> The fact that human beings can be aware of certain of their psychological states is not, on this view, any more mysterious than that they can be trained to report on the presence of adrenalin in their bloodstreams, or on their body temperature, or on a lack of blood flow in their extremities. Ability to report is not a matter of "presence to consciousness" but simply of teaching the use of words. The use of sentences like "I believe that p" is taught in the same way as that of sentences like "I have a fever." So there is no special reason to cut off "mental" states from "physical states" as having a metaphysically intimate relation to an entity called "consciousness." To take this view is, at one stroke, to eliminate most of the problematic of post-Kantian philosophy. (Rorty, 1991, p. 121)

Rorty and "Mentalism"

It should be noted, especially to the behavior-analytic newcomer to such material, that the terms and phrasing in this chapter (and the book in general) will be unfamiliar and may seem mentalistic. Although this is not the place to address the full range of issues relevant to mentalism from the perspective of radical behaviorism (for various treatments see, e.g., Day, 1980; Leigland, 1997, in press; Moore, 1990; Skinner, 1953, 1974), we may summarize by saying that from this perspective the term *mentalism* generally means the taking of internal states, processes, or presumed entities to be the causes of behavior, where by *behavior* we mean any or all of the functional activities of the organism (public or private), and by *cause* we mean simply an observed correlation (in the Machian-Skinnerian tradition; e.g., Chiesa, 1994; Leigland, 1997, 1998, in press). The objection to this version of mentalism is a pragmatic one, in that the word *cause* is reserved for those var-

iables that can be, in least in principle, directly observed and manipulated, and thus private events or experience would fall within the language game of *behavior* rather than of *cause,* even though such events may enter into a controlling relation (along with myriad other variables) with respect to behavior (e.g., Day, 1983; Skinner, 1945, 1953, 1957, 1964, 1974).

In philosophical writings such as Rorty's, it is not the use of ordinary-language mentalistic terms as such that would indicate mentalism in this sense. A frequently occurring phrase such as "beliefs and desires," for example, can be understood as serving a descriptive function only. There are other instances in which "mental states" may be included or implied under the the term *cause,* but it is safe to say that Rorty's nonreductive materialism must always be able to link up private events with historical and environmental events, conditions, and context. The following passage is illustrative:

> But once we drop the notion of "consciousness" there is no harm in continuing to speak of a distinct entity called "the self" which consists of the mental states of the human being: her beliefs, desires, moods, etc. The important thing is to think of the collection of those things as *being* the self rather than as something which the self *has.* The latter notion is a leftover of the traditional Western temptation to model thinking on vision, and to postulate an "inner eye" which inspects inner states. For this traditional metaphor, a non-reductive physicalist model substitutes the picture of a network of beliefs and desires which is continually in the process of being rewoven. . . . This network is not one which is rewoven by an agent distinct from the network—a master weaver, so to speak. Rather, it reweaves itself, in response to stimuli such as the new beliefs acquired when, e.g., doors are opened. (Rorty, 1991, p. 123)

In this passage, then, we see a notion of self that is descriptive and devoid of an autonomous agent. The general picture bears similarities to Skinner's characterization of the concept of self as "representing a functionally unified system of responses" (Skinner, 1953, p. 285). Rorty's "beliefs" in the last sentence of the quotation above would qualify under the term *response* or *behavior,* as a functional activity of the person in response to a changing environmental condition (as when

an opened door "leads to the belief" that it is raining outside). Rorty's "belief" is described in this passage as stimuli, but here we may say that a repertoire of behavior has been changed (or a network rewoven) in part through interaction with private or public verbal behavior, which in turn had been occasioned by environmental events (e.g., Skinner, 1957). In any case, an autonomous, originating, causal, mental force (a "master weaver") is absent.

Rorty (1991), following Davidson, turns the traditional agenda of mind versus body as an issue not of metaphysics but of mere verbal behavior; a matter of a given state of affairs under two kinds of descriptions, two vocabularies, two nonsubstitutable repertoires of verbal behavior. One of these repertoires serves the expedient function of ordinary verbal interaction within the larger verbal community; the other serves the functions and goals of a scientific verbal community. To these two, behavior analysts would advocate a third vocabulary, a technical scientific vocabulary that bears relations but not equivalence to the other two (cf. Leigland, 1996) but that has shown itself to be more effective than ordinary language in situations in which prediction and control are of prime importance (e.g., Leigland, in press).

LIBERAL DEMOCRACY, BEHAVIORAL SCIENCE, AND SOCIAL CHANGE

The third section of Rorty's (1991) collection of papers concerns issues of liberal democracy and culture. Pragmatism has been controversial in its interpretations of society and culture for some of the same reasons as radical behaviorism has been; for example, both challenge the traditional notions of human nature, absolute values, and other foundationalist perspectives.

The first of the papers in this section, entitled "The Priority of Democracy to Philosophy," argues, contrary to much contemporary philosophical work, that although the concept of liberal democracy is in need of discussion and philosophical articulation, liberal democratic politics may nevertheless be advocated without appeal to either (a) philosophical justification in terms of metaphysical first principles or universal values on the

one hand or (b) metaphysical theories of human nature, rationality, or the Self on the other. The latter point means the rejection of a metaphysical view of human beings as the basis for justifying a particular set of political practices. Rorty makes use of the work of Dewey and philosopher John Rawls in describing the issues involved, and the following passage illustrates the character of the argument:

> This conclusion [regarding human nature as justification] may seem liable to an obvious objection. It may seem that I have been rejecting a concern with philosophical theories about the nature of men and women on the basis of just such a theory. But notice that although I have frequently said that Rawls *can be content* with a notion of the human self as a centerless web of historically conditioned beliefs and desires, I have not suggested that he *needs* such a theory. Such a theory does not offer liberal social theory a *basis*. If one *wants* a model of the human self, then this picture of a centerless web will fill the need. But for purposes of a liberal social theory, one can do without such a model. One can get along with common sense and social science, areas of discourse in which the term ''self'' rarely occurs. (Rorty, 1991, p. 192)

In this passage we see the pragmatist themes at work again; the rejection of metaphysics (normally as a useless distraction, if not a hazard) and the emphasis upon a characterization of philosophy ''at ground level,'' where the concern inevitably comes around to the practical, the everyday, the person-in-the world versus the disembodied abstraction, the idealized, the person as rational autonomous agent.

Such a lack of grounding, however, often gives rise to charges of relativism, a topic that is addressed at various points throughout the book. The charge of relativism may come in different forms, some of which are described and compared briefly in one of the first papers in Rorty's (1991) collection, entitled ''Solidarity or Objectivity?'' One of the simplest and most common criticisms of relativism asserts that the views under criticism imply that every belief is as good as every other. In philosophy, such a view is commonly held to be self-refuting, because if the assertion applies to itself, then all contrary beliefs must be just as good. Further, as Rorty points out,

such a criticism is characteristically leveled against pragmatists by realists, and in fact imposes a realist perspective onto pragmatism when the criticism is made. That is, for a philosophical position to imply that ''every belief must be as good as every other'' could only make sense if such beliefs were viewed from some sort of detached, objective, ''god's eye view''—the very perspective that pragmatism denies.

Rather than relativism, Rorty (1991) describes pragmatism in terms of *ethnocentrism,* a term that here refers to ''an inescapable condition—roughly synonymous with 'human finitude''' (p. 15). That is, ethnocentrism simply refers to the fact that given the contingent and historicist view of human beings offered by pragmatism (and fully shared by radical behaviorism), it is impossible to escape or transcend the cultural perspectives that one has acquired. Thus, even though the pragmatist would not advocate his or her own cultural views and practices through a rational appeal to the absolute character of the culture's values, for example, or by arguing that these cultural practices and values tap into the true nature of human beings in a particularly effective or appropriate way, he or she may nevertheless argue in favor of such cultural practices by, for example, comparing their procedures and products with alternative views. That such arguments would not succeed in persuading all to whom they might be presented would not be surprising; he or she would be making no assumptions of rationalism on the part of the listener. Some listeners might bring to the discussion cultural views so contrary or foreign that the pragmatist might deem the attempt at persuasion to be not worth the effort. But note that in casting the advocacy of cultural views or practices in this way, we have once again left traditional metaphysics behind, and have once again arrived in the middle of a verbal interaction.

Another concept discussed by Rorty (1991) and of interest to radical behaviorists is that of freedom. The final paper in the series is entitled ''Cosmopolitanism without Emancipation: A Response to Jean-Francois Lyotard.'' In addressing some issues arising from Lyotard's postmodern philosophy, Rorty makes the case against philosophical assumptions that social progress involves a liberation

of the human Self or of some intrinsic human nature. Rorty's substitution for such metaphysical conceptions of human freedom is a notion of "freedom" in the sense of "free and open discussion" among individuals or cultures, where such free and openness is cashed out in terms of "persuasion rather than force." The following passage is illustrative:

> The pragmatist utopia is thus not one in which human nature has been unshackled, but one in which everybody has had a chance to suggest ways in which we might cobble together a world (or Galactic) society, and in which all such suggestions have been thrashed out in free and open encounters. We pragmatists do not think that there is a natural "moral kind" coextensive with our biological species, one that binds together the French, the Americans, and the Cashinahua. But we nevertheless feel free to use slogans like Tennyson's "The Parliament of Man, the Federation of the World!" For we want narratives of increasing cosmopolitanism, though not narratives of emancipation. For we think that there was nothing to emancipate, just as there was nothing which biological evolution emancipated as it moved along from the trilobites to the anthropoids. There is no human nature which was once, or still is, in chains. Rather, our species has—ever since it developed language—been making up a nature for itself. (Rorty, 1991, p. 213)

The notion of freedom as construed in terms of interactions characterized as persuasion rather than force has similarities to Skinner's discussions of the same topic. Like Rorty, Skinner disconnected the term *freedom* from its traditional metaphysical linkages, and treated the entire issue in psychological-behavioral terms. As a property of verbal behavior, the term may be subjected to a functional analysis (e.g., Leigland, 1996; Skinner, 1945), at least in provisional form, in an effort to identify some of the conditions under which it occurs in verbal interactions. As such, *freedom* is not treated as an ontological state but rather as a "psychological experience" or phenomenon. Such a treatment may be seen in the following passage from Skinner's (1989b) new preface to *Beyond Freedom and Dignity* (originally published in 1971; where Skinner had used the term *feeling,* I have substituted the term *experience;* cf. Skinner, 1953, chap. 17):

> But if people were actually free to do as they pleased, even if only occasionally, a science of behavior was impossible, and some critics dismissed my book out of hand on those grounds. But I was not arguing the issue of determinism. Whether or not one was actually free [in the ontological sense] had little to do with whether one [experienced freedom] and the historical struggle for freedom was a struggle for the [experience], not the [ontological] fact. . . . What lay beyond freedom and dignity was the future of a world in which those and other valued [experiences] could still be enjoyed. (Skinner, 1989b, p. 113)

As a term examined in verbal context, *freedom* has been interpreted in the radical behaviorist literature to be, in a crude sense, the reciprocal of coercion (e.g., Sidman, 1989; Skinner, 1953, 1971). In behavior analysis, coercion is played out technically, of course, in the operations and processes of aversive control—negative reinforcement and punishment (e.g., Catania, 1998; Sidman, 1989)—but in any case they would appear to be equivalent to Rorty's (1991) reference to force. Thus, for Rorty, a "free, liberal democratic society" would be one in which social progress is achieved without aversive control but with cultural evolution based on the contributions of its members via appetitively based verbal exchanges among themselves and with other cultures. What remains to be examined is the role of a science of human behavior in such a society.

Rorty, Skinner, and "Scientism"

> American pragmatism has, in the course of a hundred years, swung back and forth between an attempt to raise the rest of culture to the epistemological level of the natural sciences and an attempt to level down the natural sciences to an epistemological par with art, religion, and politics. (Rorty, 1991, p. 63)

Rorty would attribute the former position described in this passage to Dewey, for example, and would take the latter position himself. Throughout the book, he criticizes *scientism,* described as a representationalist view of science as a privileged window on Reality. According to this view, science employs a special Method that provides information on the true nature of things; for example, when we assert that a table is "really just" or is "nothing but" a collection of atoms, and so on.

Because Rorty would demarcate science in a "merely Baconian way," science is viewed as epistemologically no different than art, religion, literary criticism, and politics. What is different about science, as we have seen, is its ultimate contributions to prediction and control. Rorty elaborates as follows:

> This pragmatic view that science is whatever gives us this sort of power will be welcome if one has developed doubts about traditional philosophical inquiries into scientific method and into the relation of science to reality. For it lets us avoid conundrums like "what method is common to paleontology and particle physics?" or "what relation to reality is shared by topology and entomology?" while still explaining why we use the word "science" to cover all four disciplines. (Rorty, 1991, p. 47)

From this perspective, it makes little sense that science would be metaphysically privileged, because, as Rorty goes on,

> What is so special about prediction and control? Why should we think that explanations for this purpose are the "best" explanations? Why should we think that the tools which make possible the attainment of these particular human purposes are less "merely" human than those which make possible the attainment of beauty or justice? What is the relation between facilitating prediction and control and being "nonperspectival" or "mind-independent"? (Rorty, 1991, p. 58)

It is important to point out that in these passages, Rorty's references to prediction and control are not directed to Skinner's work, but to science in general. Rorty's pragmatism is thus antiscientistic in the sense that science is not a window on Reality or Truth, but rather one of many kinds of important human endeavors. Rorty would not deny any of the accomplishments and contributions of science, but would advocate in favor of the accomplishments and contributions of the artist and poet. In separating such discussions from the traditional metaphysical issues, "we would have much less trouble thinking of the entire culture, from physics to poetry, as a single, continuous, seamless activity in which the divisions are merely institutional and pedagogical" (Rorty, 1991, p. 76).

As we have seen, Skinner's radical behaviorism is consistent with such a view; a culture as human environment–behavior interaction unencumbered by metaphysical seams but describable in terms of functional activities. If it is possible to describe Skinner's work in such antirepresentational, pragmatist terms, however, then how are we able to arrive at Skinner's outspoken advocacy of science? That is, if one were to take the view of science as the Method by which the "underlying reality" of the world may be seen through the veil of "mere appearances," then a special advocacy of science (scientism) would follow quite naturally. If science is merely one more (important, granted) form of human activity, then why should science carry more weight in planning for the future then, say, philosophy or politics?

Of course, Skinner's work is widely regarded as scientistic in the sense that his work, particularly in his later years (e.g., Skinner, 1971), strongly advocated the use of science as a way of solving human problems from the personal to the cultural and global. The key to understanding Skinner's scientism, however, is not representationalism, realism, or reductionism, but rather the historical influence upon Skinner of the work of Francis Bacon and Ernst Mach. Following the traditions of Bacon and Mach, Skinner frequently identified the task of science with such terms as *prediction and control, effective action,* and the like, but took an additional and unusual step in advocating basic and applied science directly to the context of human affairs itself. In the arena of human affairs, prediction and control may not be the only goals of interest to all members of a culture, but some of the other goals of interest may be found to have important relations to prediction and control because these are relevant to how reliably such goals may be achieved.

Further, Skinner's writings on the applications of a science of human behavior to social planning (e.g., Skinner, 1953, 1971) were directed toward the role of such a science in the designing of better cultural practices (e.g., more effective in the long and short term, less destructive, etc., where these assessments must also take place in cultural context). How are we to make improvements in a given cultural area, such as education, unless we are able to make improvements in educational practices? The point is that conspicuous problems may be said to point to a need for intervention and influence—prediction and control—and sci-

ence is a form of human activity that is well suited to these goals. Part of what seems unusual about Skinner's case is the idea of applying scientific practices to human behavior itself as a subject matter. What the practices would yield would be the usual products of science, or "rules for effective action." Such rules would not represent reality but would simply provide another example of the historical advantages of science in those areas to which it has been applied; namely, that rules derived from direct interaction and study of a phenomenon are generally more effective than rules derived primarily from other verbal, cultural, or historical sources.

Skinner's central idea was that producing better cultural practices was a matter for empirical research and experimentation. Although there are a variety of problems to be solved in the development of a truly comprehensive science of human behavior and its associated applications, progress has been made in a number of areas (e.g., education; see, e.g., Johnson & Layng, 1992, 1994; for a more comprehensive treatment of cultural issues, see Biglan, 1995). The idea of cultural experimentation may be found in the pragmatist tradition as well, as seen in the following:

> Both Jefferson and Dewey described America as an "experiment." If the experiment fails, our descendants may learn something important. But they will not learn a philosophical truth, any more than they will learn a religious one. They will simply get some hints about what to watch out for when setting up their next experiment. Even if nothing else survives from the age of the democratic revolutions, perhaps our descendants will remember that social institutions *can* be viewed as experiments in cooperation rather than as attempts to embody a universal and ahistorical order. It is hard to believe that this memory would not be worth having. (Rorty, 1991, p. 196)

CONCLUSION

To make a case that philosophical pragmatism and radical behaviorism have certain perspectives or assumptions in common is not, of course, to say that there are no differences. First, it is important to emphasize that work such as Rorty's (1991) collection of papers is directed to the philosophical community; the task of pragmatism is to question

a set of *philosophical* traditions and assumptions, and to follow the implications when certain traditional distinctions, questions, and issues are disposed of. Skinner's (e.g., 1974) radical behaviorism, on the other hand, was directed to the community of scientific psychology; Skinner's work raised fundamental questions regarding the mainstream traditions of *psychological science*. Readers from either tradition would likely find the writings of the other to be unfamiliar in style, terminology, and issues addressed.

Rorty's (1991) few comments on Skinner are revealing; at times there appear to be indirect references to points of common ground. In most cases, however, it is clear that Rorty takes Skinner to be scientistic in the representationalist sense, and takes Skinner's notion of science to be reductionistic. The following two passages are illustrative:

> One consequence of giving up notions of truth as accuracy of representation, or as correspondence to how things are in themselves, is that we pragmatists cannot divide up culture into bits which do this job well and those which do not. So we are deaf to Skinnerian attacks on notions like "freedom" and "dignity," deaf to the appeal of "scientism." A Skinnerlike, but holistic, naturalization of the theory of inquiry brings with it an inability to take seriously a Skinnerlike reductionism. (Rorty, 1991, pp. 109–110)

> Like Dewey's (and unlike Skinner's) [Davidson's] is a *non-reductive* naturalism, one which does not assume that every important semantical term must describe a physical relationship. (Rorty, 1991, p. 135)

As we have seen, a close study of Skinner and the technical vocabulary of behavior-analytic science shows that a reductionist characterization does not fit. First, the technical terms of behavior analysis are not reducible to physical terms alone (i.e., measures of movement through space over time). Second, the functional analysis of verbal behavior (e.g., Skinner, 1945, 1957), an important aspect of the radical behaviorist systematic position, would have to argue against taking the physical as foundational in any epistemological or ontological sense (although physical terms and measures would certainly be important for many *practical* scientific consider-

ations; e.g., Catania, 1998; Day, 1980; Leigland, 1993, 1996).

Skinner has undoubtedly acquired the reputation as a reductionist from two sources. One of these is Skinner's wide-ranging use of the word *physical* throughout his writings, although the term *functional* might have been a more consistent choice of terms on many of these occasions. A second source can be seen in some of Skinner's rough translations from ordinary-language terms to the technical vocabulary of behavior analysis (Day, 1977; Leigland, 1996). A representative example is the following:

> *It is of no advantage to say* [italics added] that [occupational] therapy helps the patient by giving him a ''sense of achievement'' or improves his ''morale,'' builds up his ''interest,'' or removes or prevents ''discouragement.'' Such terms as these merely add to the growing population of explanatory fictions. One who readily engages in a given activity is not showing an interest, he is showing the effect of reinforcement. We do not give a man a sense of achievement, we reinforce a particular action. To become discouraged is simply to fail to respond because reinforcement is not forthcoming. (Skinner, 1953, p. 72)

To emphasize the first seven words of this passage is to illustrate the pragmatic reinterpretation; that is, if one is to do such therapy *effectively*, there are important advantages to going beyond the ordinary language and ordinary practices—such are the advantages of science in all areas of application. However, note that the wording of the passage also speaks strongly to a reductionistic interpretation; that is, Skinner seems to be saying that the ordinary-language terms ''really are'' or ''are nothing but'' the technical terms.

At this point one might be tempted to raise the question of which interpretation is the real, true, or genuinely representative interpretation regarding Skinner's work and for radical behaviorism as a scientific system. By this time it should be clear, however, that for both the radical behaviorist and the pragmatist this would not be the most useful way to phrase the question. The pragmatic interpretation is offered here as the reading that is (a) more consistent with the larger implications of the greater part of Skinner's writings (especially those dealing with verbal be-

havior) and (b) the more useful of the two in avoiding useless metaphysical distractions.

There does appear to be at least one significant disagreement between Rorty's pragmatism and Skinner's radical behaviorism. The issue concerns the role of science in social planning. In Skinner's view of global human problems, there is a great urgency to find more effective solutions, and science presents itself, as it has in other areas of human endeavor, as a way of abstracting rules for effective action. In this case, of course, the rules describe abstracted regularities of human environment–behavior interaction, or ''contingencies of survival,'' ''contingencies of reinforcement,'' and ''contingencies of cultural evolution'' (e.g., Skinner, 1971, 1989b).

Interestingly, Rorty argues for a view of a human being as a ''contingent web of beliefs and desires,'' wherein people and societies develop not with respect to an intrinsic Nature or Essence, but rather through chance and happenstance alone. From this, Rorty's recommendations for social progress involve (a) coming to terms with this contingent view of human beings, and with this, promoting a sense of human solidarity, and (b) thrashing out alternative courses of action, policies, and practices for the culture through noncoercive, open discussion by all concerned. To the former, the radical behaviorist would join the pragmatist in promoting antiessentialist and antirepresentationalist views of human beings. To the latter, the radical behaviorist would join the discussion with recommendations on certain kinds of changes in the ways things are done, and with studies illustrating their feasibility and effectiveness. In this discussion they would also urge the following: To solve the problems that face us today, at some point we must go beyond discussion to the achievement of effective action.

Despite such differences, however, there is a central issue upon which the two would agree. The pragmatist and the radical behaviorist would see no way for any human activity, whether verbal or nonverbal, to transcend or stand apart from human language, culture, or history. In a passage often quoted in Rorty's writings, the view may be summarized in the words of William James (1981), that ''the trail of the human serpent is thus over everything'' (p. 33).

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